Designing a Curriculum Database from a World-Wide Web-based Distance Learning Resource

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Curriculum databases are important for helping faculty to make curriculum decisions and for enabling students to see their curriculum. The World-Wide Web affords medical educators the ideal environment for making educational material available to students away from the traditional teaching venues.

The LectureLinks project at Johns Hopkins School of Medicine, was initially designed as a student-based resource for Web sites throughout the world yoked to our curriculum. Its role is being expanded as a curriculum database for faculty and as a distance learning framework for the institution. The design of the system is as a text-file–based Web site administered via a relational database. The URL is http://infonet.welch.jhu.edu/~omie/LectureLinks/

We created our Web-based distance learning resource, from the students' perspective, with three concerns: students in the clinical years generally have poor access to basic-science material (including updates of their own curriculum); students in all four years could not find material easily in the paper-based notes, as the notes were not indexed; and students do not have time to "surf the 'Net" to find Web-based resources for their curriculum. As we worked on collecting hundreds of Web sites and hundreds of other resources (lecture notes and syllabi), we realized the need for better organization.

The current specification for LectureLinks is that it should serve as the primary distance learning resource for students and as the curriculum database for faculty. As a distance-learning resource, students should be able to access local course information as well as remote Web sites. Furthermore, students should be able to access curricular materials at other times than when a course is taught. As a curriculum database, faculty should be able to find easily what topics are covered by other faculty members, and curriculum managers should be able to generate reports that give them a picture of the curriculum.

Figure 1 shows a data-flow diagram for the overall system, with an entity–relationship diagram for the

database. Users view the *LectureLinks resource* via a Web browser. They provide *Feedback* via a Web-based form, whose content is automatically accreted to an *Updates database*. These updates are then incorporated into the *LectureLinks database*. As needed, HTML-creation code is run to regenerate the LectureLinks resource, and a *full-text index* of the Web documents is created for the user. These scripts create updated and properly marked-up files ready for uploading to the server.
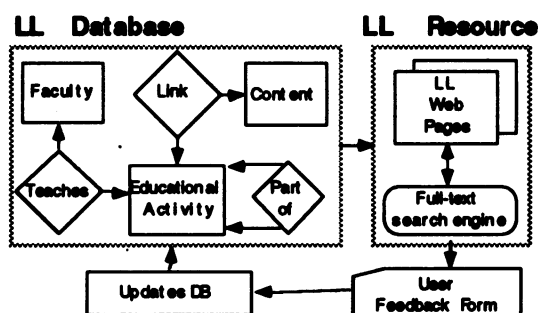

Figure 1. Database entity-relationship schema

The LectureLinks resource went on-line September, 1995. Students have accessed the resource over 4700 times in the ensuing six months, 84% of the time from our Information Resources Center computer lab using a GUI Web browser. The remainder of the time, students accessed the resource from remote sites using lynx, a character-based browser. The Welch Medical Library now provides PPP and SLIP access to home users, enabling GUI access from home and remote clinical sites, where network access may not be available.

LectureLinks is an example of how providing access to educational information can affect the educational process itself. Initially designed as an access point for Web sites throughout the world yoked to our curriculum, it has turned into a curriculum database for faculty and into a distance learning framework for students. Neither of these capabilities was available at Hopkins before the creation of this access point. We hope to evaluate over time the success that this Web resource has in fulfilling these new demands.